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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/564,697

01/11/2006

Jens Jensen

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EXAMINER

SHRIVASTAV, BRIJ B

ART UNIT

PAPER NUMBER

2831

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/564,697	<b>Applicant(s)</b> JENSEN ET AL.	
	<b>Examiner</b> Brij B. Shrivastav	<b>Art Unit</b> 2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13, 25 and 37-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-13, 25 and 37-39 is/are rejected.
- 7) ☐ Claim(s) 4-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/11/06' 3/28/06' 2/10/06</u> .                               | 6) <input type="checkbox"/> Other: ____.                          |

### DETAILED ACTION

1. Applicant has cancelled claims 14-24 and 26-36. The pending claims are 1-13, 25 and 37-39 are to be examined on their merit.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 7, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imahori: patent # JP 61198043, and further in view of Machida et al (US 6,700,375).

As regards to claim 1 and 13, Imahori teaches a system and a method for obtaining a magnetic field correlation (MFC) of a sample using magnetic resonance imaging (MRI), including a storage medium, which includes software that is capable of being executed to obtain magnetic field correlation using spin echo sequence (figure 1-3, see abstract in English). Imahori does not specifically teach application of two or more spin echo sequences to the sample to obtain a resultant information wherein at least one spin echo sequence is an asymmetric spin echo sequence to determine the MFC as a function of the resultant information. Machida et al teach application of two or more spin echo sequences to the sample to obtain the resultant information wherein at least one spin echo sequence is an asymmetric spin echo sequence to determine the MFC as a function of the resultant information (see brief summary, also column 1-3, lines 15-54 and figure 1-3). It would have been obvious to one having ordinary skill in

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the art at the time the invention was made to adapt teaching of Machida et al with the teaching of Imahori to improve field homogeneity, improving image quality.

As regards to claim 25, Imahori teaches a software arrangement which, when executed on a processing device configures the processing device to measure a magnetic field correlation (MFC) of a sample using magnetic resonance imaging (MRI), including a software that is capable of being executed to obtain magnetic field correlation using a spin echo sequence (figure 1-3, see abstract in English). Imahori does not specifically teach application of two or more spin echo sequences to the sample to obtain resultant information wherein at least one spin echo sequence is an asymmetric spin echo sequence to determine the MFC as a function of the resultant information. Machida et al teach application of two or more spin echo sequences to the sample to obtain resultant information wherein at least one spin echo sequence is an asymmetric spin echo sequence to determine the MFC as a function of the resultant information (see brief summary, also column 1-3, lines 15-54 and figure 1-3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt teaching of Machida et al with the teaching of Imahori to improve field homogeneity, improving image quality

. As regards to claim 37 Imahori teaches a method for obtaining a magnetic field correction (MFC) of a sample. Imahori does not teach application of two or more magnetic resonance imaging sequences to a predetermined region of the sample at a plurality of points in time to produce resultant data; and determine the MFC as a function of at least one set of molecules provided in the sample and the resultant data.

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Machida teach application of two or more magnetic resonance imaging sequences to a predetermined region of the sample at a plurality of points in time to produce resultant data; and determine the MFC as a function of at least one set of molecules provided in the sample and the resultant data (see brief summary, also column 1-3, lines 15-54 and figure 1-3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt teaching of Machida et al with the teaching of Imahori to improve field homogeneity, improving image quality.

Claims 7 and 39 are rejected as Imahori teaches magnetic resonance sequences including spin echo sequences and generation of an image as a function of the determined MFC (see abstract; figure 1-3).

As regards to claims 2 and 3, Imahori does not specifically teach dual spin echo sequences having multiple echoes. Machida et al teach dual spin echo sequences (figure 1-3).

Claims 8-12 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imahori: patent # JP 61198043 and Machida et al (US 6,700,375), as applied to claim 1 and 37 above, and further in view Jenson et al: Magnetic Resonance in Medicine; Vol. 46, pp 159-165 (2001). Imahori and Machida et al do not teach MFC function changes due to iron/paramagnetic element distribution under different conditions in normal or diseased tissue. Jenson et al MFC function changes due to iron/paramagnetic element distribution under different conditions in normal or diseased tissue. It would have been obvious to one having ordinary skill in the art at the time the invention was made to

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adapt teaching of Jenson et al with the teachings of Machida et al and Imahori to improve field homogeneity, improving image quality.

4. Claims 4-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brij B. Shrivastav whose telephone number is 571-272-2250. The examiner can normally be reached on 7 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

May 25, 2009

/Brij B Shrivastav/  
Primary Examiner, Art Unit 2831